

इंटरनेट

मानक

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Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

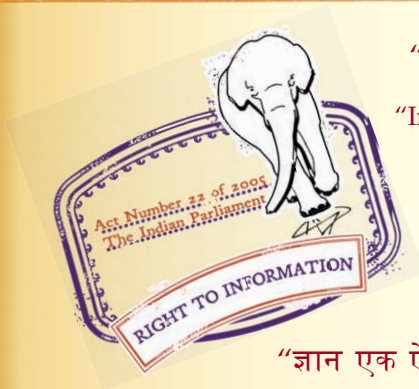
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 6985 (1973): Precision Box Angle Plates [PGD 25:
Engineering Metrology]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

(Reaffirmed 2005)

SPECIFICATION FOR PRECISION BOX ANGLE PLATES

1. Scope — Covers requirements for precision box angle plates.

2. Terminology

2.0 For the purpose of this standard, definitions given in **2.1** to **2.4** shall apply.

2.1 Working Faces — The term applies to all external faces and edges.

2.2 Tolerance on Flatness — The maximum permissible distance between two imaginary parallel planes within which the surface under consideration can just be enclosed (see Fig. 1).

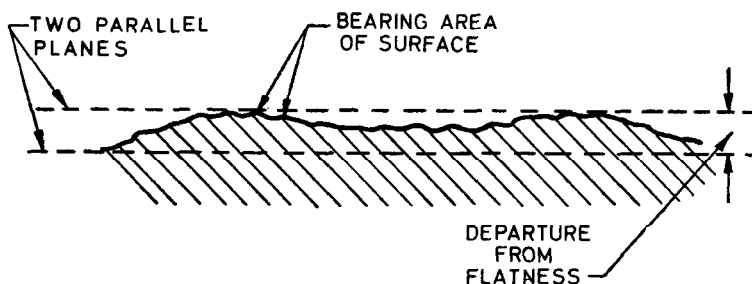


FIG. 1 EXAGGERATED ILLUSTRATION OF FLATNESS TOLERANCE

2.3 Tolerance on Squareness — The maximum permissible distance between two imaginary parallel planes within which one of the surfaces under consideration can just be enclosed, when the other surface is perpendicular to the imaginary parallel planes. The squareness tolerance is expressed over the total length L of one of the surfaces (see Fig. 2).

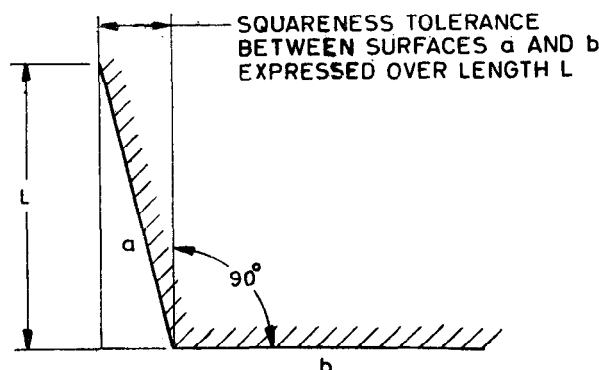


FIG. 2 EXAGGERATED ILLUSTRATION OF SQUARENESS TOLERANCE

2.4 Tolerance on Parallelism — The maximum permissible distance between two imaginary parallel planes within which the surface under consideration can just be enclosed. The two imaginary parallel planes are parallel to the datum plane in question (see Fig. 3).

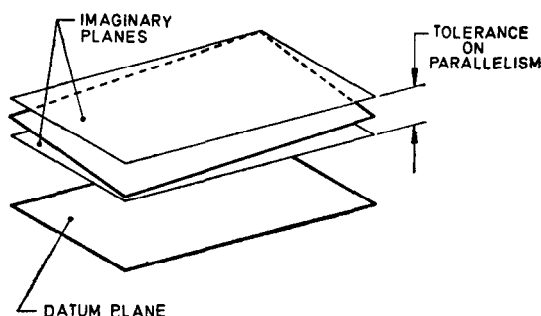


FIG. 3 EXAGGERATED ILLUSTRATION OF PARALLELISM TOLERANCE

Adopted 18 June 1973

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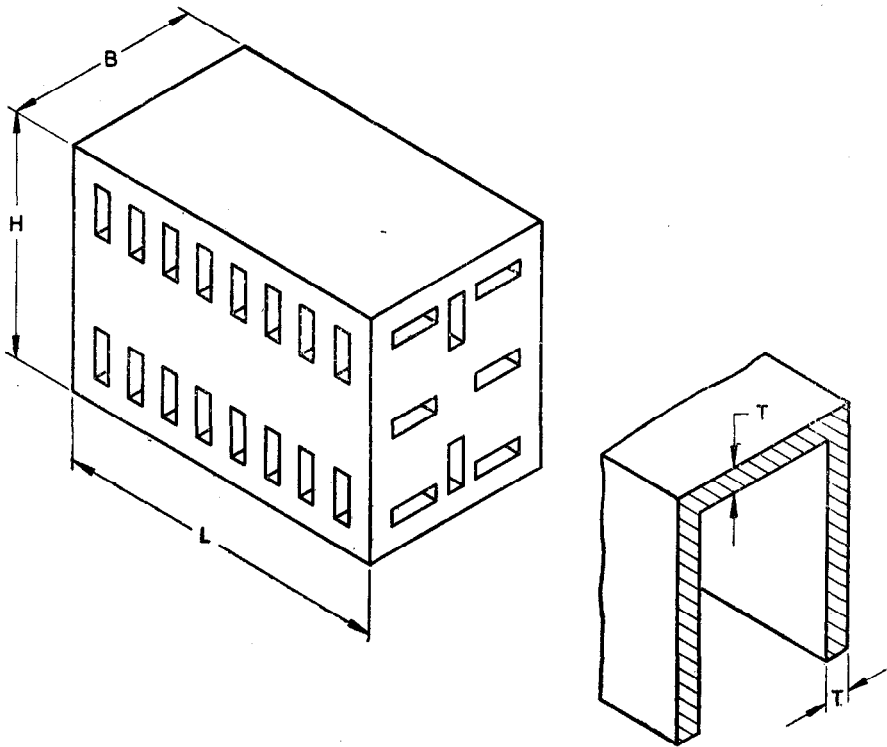
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3. Recommended General Dimensions

3.1 The dimensions of precision box angle plates shall be as given in Table 1. When precision box angle plates of intermediate sizes are required, these shall be made to the tolerances as those for the next smaller standard size.

TABLE 1 RECOMMENDED GENERAL DIMENSIONS OF PRECISION BOX ANGLE PLATES

All dimensions in millimetres.



Size No.	L	B	H	T, Min
1	125	75	100	13
2	175	100	125	13
3	250	150	175	16
4	350	200	250	22
5	450	300	350	22
6	600	400	450	25

- 3.2 The precision box angle plates shall be webbed in the open end for extra rigidity.
- 3.3 Where T-slots are provided they shall comply with IS : 2013-1962 'Dimensions for T-slots', and the thickness 'T' shall be increased proportionately.
4. Material and Hardness — The precision box angle plates shall be made of close-grained cast iron conforming to Grade 20 or higher of IS : 210-1970 'Specification for grey iron castings (second revision)'. The castings shall be sound, free from blow holes and porous patches; and shall be suitably heat-treated and stabilized; and shall have a minimum hardness of 180 HB.
5. Finish — All the working faces and edges shall be finished by lapping, fine grinding, or scraping. When finished by fine grinding or scraping, these shall have an area of high spots not less than 20 per cent. The method for determining bearing area is given in Appendix A. Other surfaces shall have a smooth finish and shall preferably be painted. All sharp edges shall be removed. Finished surfaces shall be free from dents, corrosion marks, etc.

6. Accuracies — The accuracies of precision box angle plates shall be as specified in Table 2.

TABLE 2 ACCURACIES FOR PRECISION BOX ANGLE PLATES

All dimensions in millimetres.

Size No.	Flatness of Working Faces	Squareness of Adjacent Working Faces Over Length <i>L</i> or <i>H</i> as Applicable	Parallelism of Opposite Working Faces and Working Edges with Opposite Working Face
1	0.001 5	0.004	0.004
2	0.002 5	0.005	0.005
3	0.003	0.007	0.008
4	0.004	0.007 5	0.010
5	0.005	0.008	0.010
6	0.006	0.010	0.012

Note — For squareness tolerance, the plane with smaller length shall be taken as reference plane.

7. Designation — The designation of precision box angle plates shall consist of its size number and the number of this standard.

Example:

A size 3 precision box angle plate shall be designated as:

Precision Box Angle Plate 3 — IS : 6985

8. Marking — Each precision box angle plate shall be legibly and permanently marked with the size and the manufacturer's name or trade-mark. The marking shall be such that it does not affect the accuracy of the plate.

8.1 ISI Certification Marking — Details available with the Indian Standards Institution, New Delhi 110001.

9. Packing — Each precision box angle plate shall be packed in a strong protective case. During storage and transit, all the finished surfaces and edges of plates shall be protected against the climatic conditions by covering with a suitable corrosion preventive preparation.

APPENDIX A

(Clause 5)

DETERMINATION OF THE PROPORTION OF BEARING AREA

A-1. In order to determine the proportion of the bearing area of a scraped plate, its surface is first blued and rubbed with another plate so that the small bearing areas are brought up clearly into view. A small glass plate* on which an area of 50 × 50 mm has been ruled into 400 smaller squares (2.5 × 2.5 mm)† is then placed upon the surface. Each small square is then observed in turn and a note made of the estimated fraction of its area (in tenths) which is occupied by a high spot on the surface.

A-2. The addition of all these fractions when divided by four gives the percentage of the bearing area of the surface over the region tested. The test may be repeated at other positions on the surface in order to obtain a fair average figure.

A-3. It may be mentioned that after testing a few plates by this method the results obtained coupled with the general appearance of the bearing areas enable a fairly close estimate to be made of the proportion of bearing area of a plate merely from its general appearance.

*These glass plates can readily be produced like lantern slide by photographing a chart drawn on the paper.

†The exact size of the square is unimportant provided that all the squares are of the same size.